Analytical Chemistry

An Analytical Chemist must be very observant. The following stations will help you to learn some of the physical and chemical properties that can be used to identify substances. If you finish a station early, work on the puzzles from the other day.

Station 1

Fill in the following table

word	Definition	Example	why is this an example
Matter			
Phase			
Pure substance			
Element			
Compound			
Heterogeneous (mechanical mixture)			
Homogeneous (solution)			

Station 2

1. Take a beaker and fill it ½ full with water. Add a pinch of salt and stir. Is it homogeneous or heterogeneous? Explain.
2. Add another pinch of salt and stir. Is it homogeneous or heterogeneous?
3. What is the difference between the matter in the beaker from step 1 and the beaker from step 2?
4. Take 1 cookie and examine it. Is it homogeneous or heterogeneous? Explain.
5. Take the cookie and react it with the hydrochloric acid in your stomach.

Station 3

1. Read the sheet called "describing matter". Describe a piece of paper with as many descriptive words as possible.

2. Define "physical properties"

3. Qualitative properties do not involve a number. Quantitative properties must have a number. Put the following properties in the correct column.
    a. A pencil is 10 cm.
    b. The CN tower is tall.
    c. A ruler is 1 m long.
    d. Dr. Brown is short.
    e. The water is 32° C.
    f. The lake is deep.

Qualitative	Quantitative

Station 4

1. What is the definition for "chemical property"?
2. The following are chemical properties. Fill in at least 3 examples of the property.

Chemical property	**Example**
Reacts with water	
Reacts with air	
Reacts with pure oxygen	
Reacts with acid	
Toxicity	
Stability	
Combustibility	

3. Do question 1 on page 2 Nelson Chemistry 12.

Station 5

1. What is a chemical change?
2. What is a physical change?
3. What are 5 clues that a chemical change has occurred?
4. Think of an ice cube melting. Is it a physical or chemical change? Explain.
5. Do Question 2 page 2 Nelson Chemistry 12.

Station 6

1. List 5 physical properties of water.
2. List 5 physical properties of alkaseltzer.
3. Put ½ tablet of alkaseltzer in water.
4. Describe the reaction.
5. Using 5 physical properties, describe the product. Is it homogeneous or heterogeneous?
6. Did a physical or chemical reaction occur? Explain.